WHAT IS CLAIMED IS:
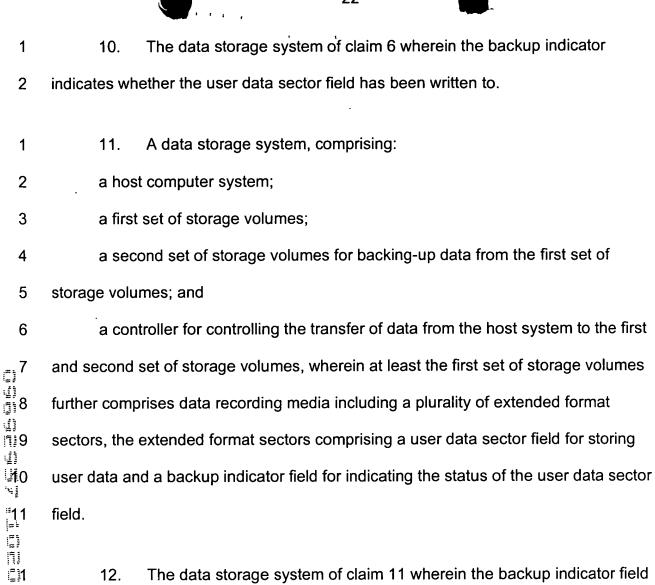
1   1.   A data recording media comprising a plurality of extended format

2   sectors, the extended format sectors comprising a user data sector field for storing

3   user data and a backup indicator field for indicating the status of the user data sector

4   field.

1   2.   The data recording media of claim 1 wherein the backup indicator field

2   indicates whether the user data in the user data sector field has been written to

3   backup storage subsequent to a previous backup operation.

1   3.   The data recording media of claim 1 wherein the backup indicator

2   comprises a single bit.

1   4.   The data recording media of claim 1 wherein the backup indicator

2   comprises an indicator of whether the user data in the user data sector field has

3   been written to backup storage subsequent to a previous backup operation and data

4   indicating the age of the user data in the user data sector field.

1   5.   The data recording media of claim 1 wherein the backup indicator

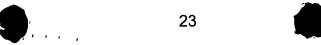2   indicates whether the user data sector field has been written to.

1   6.   A data storage system, comprising:

2   a magnetic storage medium having servo information recorded on servo

3   tracks interspersed between a plurality of extended format sectors;

4   a motor for moving the magnetic storage medium relative to a magnetic head

5   assembly; and

6   a head assembly having at least one read head for reading and writing data

7   on the a plurality of extended format sectors;

8   wherein the extended format sectors further comprises:

9   a user data sector field for storing user data; and

10   a backup indicator field for indicating the status of the user data sector

11   field.

1   7.   The data storage system of claim 6 wherein the backup indicator field

2   indicates whether the user data in the user data sector field has been written to

3   backup storage subsequent to a previous backup operation.

1   8.   The data storage system of claim 6 wherein the backup indicator

2   comprises a single bit.

1   9.   The data storage system of claim 6 wherein the backup indicator

2   comprises an indicator of whether the user data in the user data sector field has

3   been written to backup storage subsequent to a previous backup operation and data

4   indicating the age of the user data in the user data sector field.

1   10.   The data storage system of claim 6 wherein the backup indicator

2   indicates whether the user data sector field has been written to.

1   11.   A data storage system, comprising:

2   a host computer system;

3   a first set of storage volumes;

4   a second set of storage volumes for backing-up data from the first set of

5   storage volumes; and

6   a controller for controlling the transfer of data from the host system to the first

7   and second set of storage volumes, wherein at least the first set of storage volumes

8   further comprises data recording media including a plurality of extended format

9   sectors, the extended format sectors comprising a user data sector field for storing

10   user data and a backup indicator field for indicating the status of the user data sector

11   field.

1   12.   The data storage system of claim 11 wherein the backup indicator field

2   indicates whether the user data in the user data sector field has been written to

3   backup storage subsequent to a previous backup operation.

1   13.   The data storage system of claim 11 wherein the backup indicator

2   comprises a single bit.

1   14.   The data storage system of claim 11 wherein the backup indicator

2   comprises an indicator of whether the user data in the user data sector field has

3   been written to backup storage subsequent to a previous backup operation and data

4   indicating the age of the user data in the user data sector field.

1   15.   The data storage system of claim 11 wherein the backup indicator

2   indicates whether the user data sector field has been written to.

1   16.   The data storage system of claim 12 wherein the first set of storage

2   volumes is arranged as a virtual space wherein the host views the configuration as

3   being a storage device having a first predetermined size and the controller allocates

4   storage space from the first set of storage volumes having a physically smaller size

5   than viewed by the host.

1   17.   The data storage system of claim 16 wherein the controller periodically

2   determines which sectors have been written using the backup indicator to predict

3   when the host will need additional physical space.

1   18.   The data storage system of claim 16 wherein the controller allocates

2   additional storage space on the first set of storage volumes before the host requires

3   additional storage space to minimize delays to the host.

1   19.   The data storage system of claim 18 wherein the controller reads the

2   backup indicator to determine when a usage threshold have been exceeded.

1   20.   A method for tracking the status of writes to areas of a storage device,

2   comprising:

3   a)   initializing a storage system and clearing a backup indicator field in an

4   extended format sector used for indicating the status of a user data sector field of

5   the extended format sector;

6   b)   setting the backup indicator when a host writes to a user data sector

7   field; and

8   c)   reading every sector included in a host user area of the system drive

9   and backing-up only user data sector field in the extended format sectors having the

10   backup indicator field set.

1   21.   The method of claim 20 further comprising:

2   d)   clearing the backup indicator field after the user data sector field has

3   been backed-up.

1   22.   The method of claim 21 further comprising repeating b)-d) for each

2   subsequent backup.